THE

VETERINARY JOURNAL

Editor :

FREDERICK HOBDAY, F.R.C.V.S., F.R.S.E.,

HONORARY VETERINARY SURGEON TO HIS MAJESTY THE KING; MAJOR IN THE ARMY VETERINARY CORPS, AND FORMERLY PROFESSOR IN THE ROYAL VETERINARY COLLEGE, LONDON.

Sub-Editor :

GLADSTONE MAYALL M.R.C.V.S.

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Biography.

FLIGHT COMMANDER SIDNEY SMITH, D.S.O. (Croix de Guerre).

It is not given to every man to excel in three such opposite branches of the Service as the Army Veterinary Corps, the Royal Artillery, and the Royal Flying Corps, but our distinguished young colleague has done it—and done it well, too.

Born in Lowestoft, the son of a well-known and very popular veterinary surgeon there, Mr. Sidney Smith, junr., qualified from London in 1907, and joined his father in the practice of his profession. Having always a liking for a military life, he joined the Army Veterinary Corps as a Territorial, but presently transferred to the Artillery, where he rapidly rose to the rank of Major and gained the command of his battery.

Seeking fresh fields to conquer, he again transferred to the Royal Flying Corps, in which, with phenomenal rapidity, his brilliant talents have been so much appreciated that he is already a Flight Commander, has been mentioned in despatches, and has been decorated with a D.S.O. and the Croix de Guerre. The latter was pinned on by no less a person than General Joffre himself. We of the profession are proud of him, and that he may yet receive more honours is the wish of his former colleagues in that profession ; but, more than that even, is the wish that he may come back safely, whole in limb and body, from the " Great Adventure," to help in which his patriotism has caused him to forego all the comforts and luxuries of a quiet country life.

Editorial.

SOME DISEASES OF WAR AND THEIR URGENT SIGNIFICANCE IN REGARD TO THE RETURN OF HORSES TO ENGLAND.

THIS war like all others is teaching us many lessons and bringing in its train many new experiences for the members of our profession, in common with those taught to other branches of the Army.

One of the most important, and one which must some day receive the most careful consideration, is that of the return of horses from the War Area to England when the "Great Game" is finished. The fate of hundreds of thousands of horses will be involved, and it not only concerns the horses at present in the fighting armies, but also the stock left at home. It is one upon which the veterinary profession will be bound to be consulted, and one, too, upon which ***we*** must give the deciding word.

In the present number of the JOURNAL two diseases heretofore non-existent in peace time in England have attention drawn to them, and everyone who has seen evidence of the damage done by Epizootic Lymphangitis and Stomatitis Contagiosa will agree that these two diseases must be guarded against at all costs.

Add to these Ulcerative Lymphangitis, Ulcerative Cellulitis, and Glanders, and we have a group of diseases which, if left unchecked and uncontrolled, would quickly decimate an army.

After the war the greatest care will have to be taken—and taken, too, on the advice of veterinary experts who have had experience of these diseases, and who know their job, that none of these dieases are brought back.

Glanders, thanks to the discovery of the diagnostic value of mallein, is kept well under control, and if only as much could be done by some bacteriologist for any of the others mentioned, the saving of horseflesh would be enormous. Certainly one lesson which we ***must*** learn is that, cost what it may, none of the above diseases must be allowed to get a footing in England, and provided due and proper care is exercised there is no reason why they should. Our insular position gives us an advantage which few countries possess.

AMERICA DECIDES.

AMERICA has now come in on the side of freedom and justice, and there is no doubt that the aid she will give will materially strengthen the armed might of the Allies. Perhaps we have not recognised some of the things she has already done for us and what a wealth of supply in the war has come from her. From the veterinary point of

view, in addition to large supplies of horses, she has supplied hundreds of thousands of mules, besides vast quantities of waggons, harness and saddles.

The American veterinarian has recently been granted his much deserved rank in the Army, but there is at present no well organised A.V.S., as we have here. No doubt, however, the occasion and the need will create this valuable unit on a firm footing, and we can trust our American colleagues to understand the necessity of first-rate organisation. As a body the American qualified veterinary surgeons were never better fitted to give a good account of themselves than they are at the present time, and in the tending of wounded and sick animals we shall derive a great accession of strength, knowing full well the great resources of that great continent. G.M.

Original Communications.

A REPORT UPON AN OUTBREAK OF STOMATITIS CONTAGIOSA.

By Major H. E. GIBBS,
Army Veterinary Corps.

This report is based on notes made by Captain G. G. Pook, A.V.C., who conducted the experiments during a recent outbreak in a Veterinary Hospital.

Period of Incubation.

"*A*," *Artificial.*—Judging from the result of the ten following experiments this would appear to be a question of hours only.

1. The fluid contained in the bleb of a recently-developed case was taken and sprinkled on a piece of absorbent cotton wool; this was then rubbed on to the tongue of a horse which had been first scarified.

In 24 hours a number of typical blebs formed at site of scarification; these coalesced to form one large lesion.

2. The fluid from an unbroken bleb was extracted by means of a mallein syringe and needle.

Some was injected beneath the mucous membrane on the dorsum of the tongue of an apparently healthy horse, and the rest into the front of the coronet, under rigid aseptic conditions.

In 24 hours a typical bleb had formed at point of inoculation on the tongue, and in less than 48 hours several others in the neighbourhood; these also coalesced and formed a very large lesion.

Nothing happened to the coronet.

"*B*," *Natural.*—The following experiment was carried out under various conditions which would approximate, as far as possible, to one's ideas of means of natural infection :— G.M.

Ten horses and five mules were selected and put together in one stable and kept rigidly isolated in every possible way.

They were artificially infected in the following ways :—

No. 1 horse was watered from a bucket that contained a cupful of saliva from a badly infected case.

No. 2 horse.—The hand was placed on an open tongue lesion of a bad case and immediately rubbed on the tongue of this horse.

No. 3 horse.—Absorbent cotton wool, previously rubbed on an open lesion of a bad case, was rubbed on the inner surface of the lips of this case.

No. 4 horse.—A small feed in a new nose-bag with a cupful of saliva from a badly affected case sprinkled on it was fed to this horse.

No. 5 horse.—This animal's tongue was scarified, and the hand having previously been rubbed on a lesion of a bad case was at once rubbed on the scarified area of this horse's tongue.

No. 6 horse.—Absorbent cotton wool, previously contaminated from a bad case, was rubbed on the upper and lower surfaces of the tongue of this animal.

No. 7 horse.—Hay was masticated by a badly affected animal, and then taken from its mouth and fed to this horse.

No. 8 horse.—Saliva from a badly infected horse, mixed with a bran mash, was fed to this horse.

Nos. 9 and 10 were not infected, being left to act as controls.

Mules.—Three were infected in the same way as horses Nos. 2, 3 and 7 respectively, the other two being left as controls.

RESULTS.

No. 7 developed typical lesions on the lips five days later, and on the seventh day lesions on the tongue appeared.

No. 6.—A lesion on the tip of the tongue appeared seven days after infection.

No. 10.—Lesions appeared 10 days after experiment was started ; this horse was one of the controls.

Nos. 4 and 5.—Lesions appeared 13 days after infection.

No. 9.—Lesions appeared 14 days after infection—this was the other control.

No. 2.—Lesions appeared 19 days after infection.

Nos. 1, 3 and 8 have never shown signs of the disease, in spite of the fact that all the animals of this experiment were kept together and watered from the same trough.

Mules.—These have all gone through the experiment unscathed.

The results of this experiment viewed from the standpoint for which it was conducted, namely, to get some idea of the period of incubation in naturally-affected cases, are distinctly disappointing.

On the other hand, taken in conjunction with the foregoing two experiments, they rather tend to support the opinion held here that it is the contents of the bleb which is the infective agent, and furthermore, the following experiment appears to indicate that the period of infectivity of the bleb contents is a comparatively transient one.

Five healthy horses which, as far as we know, had not been in contact with the disease, were selected, and their tongues and lips scarified. A piece of absorbent cotton wool was rubbed on a bad lesion of four days' standing, and immediately rubbed on the scarified areas of these five horses. Each horse was carefully examined on each of the 14 succeeding days, and no lesions of any description developed during this period.

Temperature.

A series of temperatures have been taken, and it has been found that it may rise to 103° F. within 24 hours of the appearance of the bleb.

We have also noticed that in those cases associated with heightened temperatures, the temperature does not persist beyond 48 hours after the appearance of the bleb.

In this connection, it would be of interest to know whether the infectivity of the bleb contents disappears synchronously with the fall of temperature. If such were the case, one could fairly definitely state that a case was non-infective two days after rupture of bleb, and such knowledge would revolutionise our methods of dealing with an outbreak.

Salivation.

If salivation is present at the commencement of the disease, it appears quite colourless, ropy and profuse; it frequently becomes frothy during the course of the disease.

We have also noticed animals in which the presence of profuse ropy saliva has been associated with a general congestion of the buccal mucous membrane, simulating a condition caused by a medicinal irritant; this congestion and accompanying increase of saliva have disappeared in a few days, spontaneously.

Lesions.

(*a*) *Site of.*—The commonest site of lesions appears to be the dorsal surface of the tongue, but as far as we are able to judge here, one cannot state that any particular portion of this surface has a marked predilection.

The lips would appear to be next in priority of liability to infection, the most frequent spot being at the commissures; the disease, moreover, appears to develop rapidly at the line of demarcation between the skin and mucous membrane at this point.

The palate comes next, and lesions are most commonly found

immediately posterior to the upper incisors, in fact, usually impinging on them ; rarely are they seen further back.

Another fairly common spot is the inside of the cheek opposite to the first molars ; we have had many cases with lesions in this position, and they have usually been associated with sharp edges of upper molars.

This fact, in conjunction with the results obtained in the experiments 1 and 2 of page 1, rather convey the impression that even though it may not be absolutely necessary to have an abraded spot in the mouth to admit of entrance of the virus, the presence of such abrasions facilitates, even if it does not actually increase, the chances of infection.

(*b*) *Classification of.*—Size varies considerably, depending upon whether the lesion is formed by one bleb or several contiguous blebs coalescing. In the former case, they are usually about the size of a florin, with ragged, irregular edges, whilst in the latter they may extend over the whole of the dorsal surface of the tongue.

The first stage of the lesion is the formation of a bleb or blister (see Fig. 1), which contains a straw-coloured serous fluid ; this bleb quickly ruptures, and the raised m.m. is shed, leaving a raw red surface, on which a few hours after shedding of m.m. a straw-coloured jelly-like substance is noticed adhering to its surface ; this jelly is probably infective as well as the serous contents of the bleb, but we are at present unable to confirm this by experimental results.

(*c*) *Extension.*—We have observed here that when a lesion makes its first appearance at the commissures of the lips, lesions almost invariably develop on the tongue, and sometimes on the palate also.

On the other hand, in cases in which the first lesion noticed is on the tongue, the lips remain frequently unaffected, although the palate may become implicated.

There appears to be little doubt that the apparent spreading of individual lesions is really a coalescing of adjacent ones.

(*d*) *Course.*—From our observations the disease takes 4-6 weeks to run its course ; the lip lesions heal quicker than any other.

Thirty horses were selected at random, and the number of days from start to finish averaged $36\frac{1}{2}$.

Twelve others were picked ; they averaged to date $39\frac{2}{3}$ days, and it is estimated that a further period of a week must elapse before they can be considered cured.

(*e*) *Healing.*—As a result of further experience, we have altered our opinion as to the method of healing expressed in our previous report. We are now of opinion that healing takes place chiefly from the periphery.

It is of interest to note that in lesions affecting the lips, the healing

appears to take place chiefly from that part of the surrounding m.m. farthest away from the skin.

Fig. 2 shows a case which had a large round lesion affecting the inside of the upper lip, and it is seen that the cicatricial tissue instead of being in the centre of the original lesion closely approximates the margin of the lip.

Appearance of Healed Lesions.

In many cases all traces of the lesions entirely disappear, especially those that are elongated.

Fig. 1.—Showing newly formed blebs on dorsum of tongue.

Fig. 2.—Showing band of cicatricial tissue beneath margin of upper lip.

In other cases, especially those of the tongue, the boundaries of the original lesion have a brownish outline, which is usually quite irregular (see Figs. 3 and 4), this ultimately disappears.

Large lip lesions frequently leave a scar of cicatricial tissue resembling a healed cut (see Fig. 2).

Healed lesions of the palate do not appear to leave any trace.

Feeding.

Small lesions do not appear to affect the animal's ability to feed, whilst large lesions cause great difficulty in feeding, with a consequent

proportionate loss of condition, which in bad cases extends to emaciation

METHODS OF INFECTION.

Probably indirect infection is the usual method in operation, such as by means of water-troughs, mangers, nose-bags, bits, hay-nets, twitches, overcrowding, and consequent soiling of companion's food.

TREATMENT.

1. *Preventive.*—Isolation of affected cases followed by thorough disinfection of vacated stall fittings, stable gear, etc. The formation of

FIG. 3.—Healed lesions on dorsum of tongue, showing irregular outline.

animals into as small parties as practicable, each party to become as self-contained and separate as possible with regard to watering, feeding, and attention.

Daily—or, better still, twice daily—mouth to mouth inspection, followed by immediate removal of all suspicious cases. In cases in which unbroken blebs are found, the bleb to be removed and the exposed surface to be dressed with a mild caustic.

2. *Curative.*—(*a*) *General.*—Soft feed (bran and linseed mashes, steamed oats, gruel in very bad cases, steamed hay, etc.).

Tonics and stimulants and attention to hygienic principles generally.

(*b*) *Local.*—We have tried various drugs, such as potass. permanganate, zinci. chlor., potass. chlor., alum in water, used in form of collutoria.

We have found touching lesions with zinci. chlor. most satisfactory, especially in those affecting the lips.

UNNAMED DISEASE.

This disease differs from the true Pustulosa Contagiosa, in so far as it is possibly more readily transmissible, certainly

FIG. 4.—Healed lesions on dorsum of tongue; these are older lesions than those of Fig. 3.

extremely benign, and has apparently no deleterious effects on animals suffering from it.

Since writing our previous report, we have conducted some experiments in connection with it, and from our observations thereon, have been led to modify the views previously held by us.

LESIONS.

(*a*) *Characteristics.*—There are usually one or more lesions which are practically always round, having the appearance of a piece of m.m. punched out. When situated on the median line of the ventral surface of the tongue, they are elongated.

(*b*) *Position.*—They are found on the ventral surface of the tongue (never on the dorsal surface) and on the lips.

(*c*) *Healing.*—Healing takes place both from the periphery and the bottom, the reparative processes being very rapid, especially those of the lip.

As far as we know at present, a depression of cicatricial tissue remains for some time to indicate the position of the lesion.

The first indication of repair is the filling of the lesion with a whitish-grey substance, which on palpation appears quite soft, and can be easily detached ; this is in contradistinction to the true Stomatitis, in which the healing surface remains quite a raw red until closed over by multiplication of cells from its edges.

General.—There is no rise of temperature, undue salivation or impaired feeding.

DETAILS OF EXPERIMENTS.

All animals selected for this experiment were free from any lesions in the mouth.

Horse No. 1.—Absorbent cotton-wool was rubbed on a lesion and then placed on the inferior surface of tongue of this horse.

Horse No. 2.—The hand was placed on a lesion and then rubbed on the tongue of this horse.

Horse No. 3.—This horse was given water that had been infected by means of saliva from a bad case.

Horse No. 4.—Hay was masticated by an infected horse and then given to this one.

Horse No. 5.—The hand was placed on a lesion and then rubbed on the lips of this horse.

Horse No. 6.—Absorbent cotton-wool was rubbed on a lesion and then on to the lips of this horse.

Horse No. 7.—Same as No. 5.

Horse No. 8.—Not infected.

Horse No. 9.—This horse was given feed that had been masticated by an infected horse.

Horse No. 10.—Same as No. 5.

Two mules were infected in the same manner as horse No. 5, the other three were kept as control animals.

Horses Nos. 1 to 8 developed lesions the day after the experiment was started, No. 9 two days after experiment.

No. 10 developed no lesions during the course of the experiment.

Mules Nos. 1, 3 and 5 developed lesions the day after the experiment was started, mule No. 4 the second day after the experiment was started, mule No. 2 the fifth day after experiment.

I am indebted to Pte. Noble, of this Hospital, for the plates illustrating various stages of lesions.

REMARKS ON THE SURGICAL TREATMENT OF QUITTOR.

By LIEUT. J. A. MATHESON.

Army Veterinary Corps.

Herewith is a brief resumé upon a modified method of operating for quittor, which has proved very successful.

The animal is cast and chloroformed in the usual way and a tourniquet applied.

A certain amount of swelling will be found in the region of the coronet. The wall of the hoof is then rasped as thin as possible, for fully half way down to the ground surface, till it yields readily to pressure of the fingers.

All horn is then cut away from under the coronary band, and an incision is made underneath it and carried upwards, between the skin and the outer surface of the lateral cartilage, to its upper border and carried over its whole extent as far as the swelling extends.

The coronary band is then raised and held by a retractor, and another incision is made through the lateral cartilage along its lower border, where it joins the os pedis, and carried upwards underneath its inner surface, parallel to the first incision.

With the aid of the French quittor knives, right and left, the cartilage can then be easily removed. If not involved, it has been found best to leave the anterior portion overlying the pedal bursa, as it is only in exceptional cases that it ever becomes necrosed as a sequel, and there is less danger of an open pedal joint ensuing if that piece of cartilage is left.

All necrosed and discoloured tissue is then removed, the sinuses pared round their edges till healthy tissue is reached, and all loose pieces of tissue removed from the interior of the wound.

The wound and surrounding tissues are now painted with iodine and packed with boric acid powder, to which has been added hydrarg. biniodide, grs. xx to the ounce. Compresses of cotton wool, which have been sterilised by boiling, are applied over the wound and coronet, and bandaged with a calico bandage, 2 or 3 ins. wide, as tightly as possible.

The temperature is taken daily, and, if no rise occurs or other signs

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seen that the wound is not healing normally, the dressing is left on for fourteen to sixteen days.

If the operation has been carried out under strict aseptic precautions, the surface of the wound will be found level with the hoof, dry and firm, with a bright rose pink colour, and in another week a thin layer of horn will have formed

Frequently when the lesion is complicated by necrotic dermatitis, sinuses will be found to penetrate into the deeper tissues of the hoof,

FIG. I.

A, Primary incision below coronary band.
B, 2nd incision, through A and under surface of skin over the whole extent of the lateral cartilage and the apparently diseased tissues.

as far as the perforans tendons and lateral ligaments, but if the necrotic tissue is all removed, recovery takes place readily.

This operation has been discredited as being a failure, both from a surgical and commercial point of view, but the actual cases detailed below go to prove that if proper care is given to the details of the operation it is very successful.

Emphasis might be laid on the following points :—

1. That the wound must be thoroughly aseptic before being tied up.

2. The inside of the wound must be perfectly smooth and all loose pieces of tissue removed, also all discoloured tissue.

3. That the compresses are applied sufficiently tight to keep the two surfaces in apposition and retained so until union has taken place. False quarters or deformity of the hoof seldom or never occurs, and the only permanent lameness resulting has been in cases where sidebone was found at the time of operation.

The following cases, 123 in all, have been operated on in this hospital between October 20th, 1916, and January 20th, 1917; and as this hospital adjoins a receiving hospital, the majority were extreme cases, too lame to be travelled further.

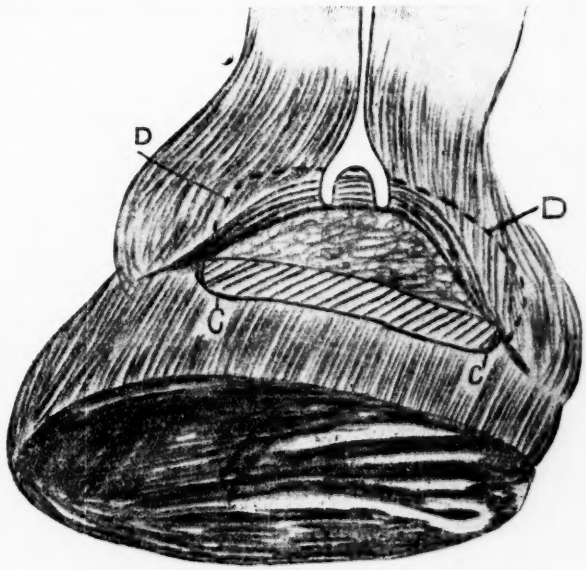

FIG. II.

C, 3rd incision, below A and through the lateral cartilage, direction towards centre of the foot.

D, 4th incision, carried from below upwards, and parallel to B.

The skin over the whole area—i.e. that shown by dotted lines—is left intact.

Twenty-four have been destroyed. Of that number six were due to diseases and injuries other than the original quittor. Three were destroyed at the time of operation, the pedal joint being found purulent, while two died a few days after operation.

Those in the table not yet discharged only require time. In some cases, so much of the tissues of the foot were removed that time is required for the foot to stand work; others are kept back for their condition, etc. In a few cases, a sinus again appeared in the course in a few weeks, but was usually easily dealt with, being quite superficial and requiring only to be opened up freely so as to allow drainage.

LIST OF QUITTOR CASES.

Hospital Number.	Colour.	Sex.	Disease.	Date of Operation.	Date of Issue.	Remarks.
B181	Bay	Mule	Quittor O.H.	20–10–16	9–1–17	——
B170	,,	M	,, O.H.	21–10–16	1–1–17	Anterior border of cartilage affected, perforans tendon necrosed.
A835	,,	M	,, O.H.	21–10–16	6–2–17	Necrosed part overlying pedal joint.
B360	Roan	M	,, N.H.	26–10–16	11–11–16	Extensive necrosis of coronet and coronary band. Developed open joint and destroyed.
B334	Ches.	G	,, N.F.	26–10–16	—	Coronary band necrosed.
B355	Bay	M	,, O.H.	26–10–16	28–12–16	Necrotic part of cartilage overlying pedal joint.
B283	,,	M	,, O.H.	27–10–16	15–1–17	——
421	,,	M	,, O.H.	28–10–16	1–1–17	——
B227	,,	M	,, N.H.	28–10–16	8–11–16	——
B333	,,	M	,, O.H.	30–10–16	7–1–17	Necrotic tissue involving tissues as far as flexor tendons.
B476	,,	M	,, N.H.	30–10–16	24–12–16	——
B435	,,	G	,, N.H.	30–10–16	26–12–16	Destroyed for canker in opposite foot.
B524	Ches.	G	,, O.H.	31–10–16	7–1–17	Necrotic dermatitis involving coronary band.
B346	Bay	M	,, N.F.	3–11–16	28–12–16	Necrotic dermatitis involving coronary band.
B242	,,	M	,, N.H.	4–11–16	27–11–16	——
B678	,,	G	,, N.F.	6–11–16	18–12–16	——
B626	Roan	G	,, N.H.	10–11–16	15–1–17	——
1194	Brn.	G	,, O.H.	10–11–16	—	Quittor healed, but destroyed for injury to forearm.
B944	Blk.	M	,, N.H.	25–11–16	6–2–17	——
C207	Bay	G	,, O.H.	25–11–16	25–1–17	——
B532	Blk.	G	,, N.F.	29–11–16	—	Flexor tendons necrosed. Destroyed same time.
C17	Bay	M	,, O.F.	29–11–16	—	Flexor tendons necrosed, wall and base of os pedis exposed and all tissue removed. Bone curetted.
B459	,,	M	,, O.H.	1–12–16	20–1–17	Flexor tendons necrosed. Destroyed for open joint opposite foot, picked up nail.
B902	,,	G	,, O.H.	1–12–16	—	Os pedis exposed. Fatty frog removed, due to necrotic dermatitis.
C537	Brn.	G	,, N.H.	2–12–16	7–1–17	Lateral cartilage partially ossified.
C246	Bay	G	,, N.H.	4–12–16	6–2–17	Necrosis tissue removed exposing os pedis.
C247	,,	M	,, O.H.	4–12–16	10–2–17	Necrosis tissue extending to capsule of pedal joint.
C290	,,	M	,, O.F.	4–12–16	—	Flexor tendons involved by necrosis.

C20	,,	M	,,	O.H.	4–12–16	—	Coronary band necrosed.
C226	,,	G	,,	O.H.	5–12–16	8–2–17	——
C240	Brn.	G	,,	O.H.	6–12–16	6–12–16	Destroyed for open joint.
C649	Bay	M	,,	N.F.	7–12–16	—	Wing of os pedis exposed.
C242	,,	M	,,	O.F.	6–12–16	20–12–16	Developed open joint, destroyed.
C263	Brn.	G	,,	O.H.	7–12–16	—	——
C542	Grey	G	,,	N.F.	11–12–16	14–12–16	Joint found open. Destroyed same time.
C690	Bay	G	,,	O.F.	9–12–16	—	——
B476	,,	M	,,	N.H.	11–12–16	24–12–16	Destroyed 24–12–16. Open pedal joint.
C449	,,	M	,,	O.F.	12–12–16	23–12–16	Destroyed for open joint.
A867	,,	M	,,	O.F.	12–12–16	20–1–17	Destroyed for open joint 20–1–17.
C706	,,	M	,,	N.H.	13–12–16	—	Fractured piece of os pedis removed.
B420	Brn.	M	,,	O.H.	14–12–16	29–1–17	Flexor tendons and lateral ligament necrosed.
557	Bay	M	,,	N.H.	14–12–16	22–1–17	——
C798	Ches.	G	,,	N.H.	15–12–16	—	Flexor tendons necrosed. Piece of os pedis removed.
B143	Brn.	M	,,	N.H.	15–12–16	—	Os pedis exposed, necrosis extending to capsule of joint.
C793	Bay	G	,,	N.F.	15–12–16	—	Piece of detached os pedis removed. Sole underrun.
C901	,,	Mule	,,	O.H.	16–12–16	5–1–17	Developed open joint and destroyed.
C795	,,	M	,,	O.H.	16–12–16	—	Necrosis extending to capsule of joint.
C850	Brn.	G	,,	O.H.	16–12–16	—	Extensive necrosis of tissue of coronet.
C898	Bay	M	,,	N.H.	18–12–16	10–2–17	Necrosis extending to flexor tendons and lateral ligament of pedal joint; also to os coronæ.
C900	,,	M	,,	O.H.	19–12–16	—	Piece of detached os pedis removed.
C902	,,	Mule	,,	O.F.	19–12–16	—	Cartilage partly ossified.
C800	Grey	G	,,	O.F.	19–12–16	—	Extensive necrosis of coronet.
C916	Bay	M	,,	O.H.	19–12–16	—	——
C893	Ches.	Mule	,,	N.H.	20–12–16	—	——
C264	Bay	G	,,	N.H.	20–12–16	—	Extensive necrosis of coronet.
A950	Roan	M	,,	N.H.	20–12–16	15–1–17	Been operated on previous to admission. Necrosis extending to capsule of pedal joint.
C899	Ches.	M	,,	O.H.	20–12–16	—	——
C955	Blk.	G	,,	N.F.	20–12–16	—	Part of os pedis detached. Necrosis extending to capsule of pedal joint.
C952	,,	M	,,	O.H.	21–12–16	7–1–17	——
C982	Grey	M	,,	N.H.	—	—	——
C990	Blk.	M	,,	O.H.	22–12–16	12–2–17	Extensive necrosis of tissue in heel. Flexor tendons involved. Destroyed for open pedal joint.
C448	Bay	G	,,	N.F.	23–12–16	—	——

LIST OF QUITTOR CASES—*continued.*

Hospital Number.	Colour.	Sex.	Disease.	Date of Operation.	Date of Issue.	Remarks.
C951	Bay	G	Quittor N.H.	23-12-16	—	Necrosis of coronary band, slough extending to capsule of pedal joint.
B202	Blk.	G	,, O.H.	24-12-16	—	Necrosis of flexor tendons, os pedis exposed.
C457	Ches.	M	,, N.H.	26-12-16	9-2-17	Ossification of lateral cartilage (partial). Destroyed for open joint.
D116	Brn.	M	,, N.F.	28-12-16	2-1-17	Destroyed for open joint.
D165	Bay	M	,, N.H.	28-12-16	—	Necrosis of flexor tendons.
D145	Ches.	M	,, O.H.	28-12-16	29-1-17	Detached piece of pedal bone removed.
D132	Bay	G	,, O.F.	29-12-16	—	——
D147	,,	M	,, N.H.	29-12-16	—	——
D152	,,	G	,, N.H.	29-12-16	—	——
D141	,,	G	,, N.H.	29-12-16	10-2-17	——
D168	,,	Mule	,, O.H.	30-12-16	8-1-17	Destroyed for open joint.
D126	,,	G	,, O.H.	30-12-16	—	——
D158	,,	M	,, N.F.	30-12-16	—	Detached piece of os pedis removed.
B660	,,	M	,, O.H.	2-1-17	20-1-17	Wall and sole underrun. Bone curetted. Destroyed for open joint.
B590	Blk.	M	,, O.F.	2-1-17	—	Destroyed for open coronet joint.
1210	Bay	M	,, N.H.	2-1-17	—	Cartilage partly ossified.
B458	,,	Mule	,, O.F.	4-1-17	10-2-17	Extensive necrosis of tissues.
C385	Brn.	M	,, O.H.	4-1-17	10-2-17	Extensive necrosis of tissues.
B140	,,	M	,, N.H.	4-1-17	—	——
D299	Bay	G	,, O.H.	5-1-17	—	Portion of coronary band sloughed.
D297	,,	G	,, O.H.	5-1-17	—	Partial ossification of cartilage.
D303	,,	G	,, O.F.	6-1-17	—	Necrosis of coronary band and surrounding tissues.
C799	,,	M	,, N.F.	6-1-17	—	Side bone present and removed with bone forceps.
D304	Ches.	G	,, O.H.	6-1-17	31-1-17	Destroyed for chronic debility.
D364	Bay	M	,, O.H.	6-1-17	—	Extensive necrosis of tissues.
D363	Roan	M	,, O.H.	8-1-17	—	Flexor tendons and surrounding tissues necrosed.
D357	Bay	M	,, N.H.	8-1-17	10-2-17	Necrosis of coronary tissues.
D361	Blk.	M	,, O.H.	8-1-17	—	Necrosis of coronary band and flexor tendons.
D362	Bay	M	,, O.H.	8-1-17	—	——
D399	,,	M	,, N.H.	9-1-17	14-2-17	Capsule of pedal joint discoloured. Destroyed for open joint.

D131	Grey	G	,,	N.H.	9-1-17	—	Necrosis of skin and underlying tissue present.
D157	Blk.	M	,,	O.H.	10-1-17	—	
D358	Bay	M	,,	N.H.	10-1-17	—	Necrosis of skin.
D359	,,	G	,,	O.H.	10-1-17	18-2-17	Necrosis of skin and flexor tendons present.
D380	Blk.	M	,,	N.H.	11-1-17	—	
D472	,,	G	,,	N.H.	11-1-17	18-1-17	Necrosis of coronary band and tendons. Destroyed for open joint.
D12	Bay	M	,,	O.F.	11-1-17	—	Necrosis of skin and underlying tissues.
D476	,,	M	,,	O.F.	12-1-17	2-2-17	Necrosis extending to pedal joint. Destroyed for open pedal joint.
D470	,,	G	,,	N.H.	12-1-17	—	Extensive necrosis of skin and coronary band.
D499	,,	G	,,	O.H.	12-1-17	—	Necrosis extending to capsule of joint.
D471	Ches.	G	,,	N.H.	12-1-17	—	Extensive necrosis present.
D369	Bay	M	,,	O.H.	14-1-17	—	Extensive necrosis present.
D473	Blk.	M	,,	N.H.	14-1-17	24-1-17	Destroyed through fractured spine, caused by slipping up in stable.
D474	,,	G	,,	N.H.	14-1-17	—	
D612	,,	G	,,	O.H.	14-1-17	16-1-17	Destroyed for open pedal joint.
D300	Ches.	M	,,	N.F.	15-1-17	—	Extensive necrosis of skin present.
D477	Blk.	G	,,	N.H.	15-1-17	18-1-17	Extensive necrosis of skin present. Died pneumonia.
D287	,,	G	,,	N.F.	15-1-17	—	
D664	Bay	G	,,	N.H.	15-1-17	9-2-17	Deep necrosis of coronary tissues present. Died debility.
D000	,,	M	,,	N.H.	16-1-17	—	Detached piece of os pedis removed. Extensive necrosis also present.
D212	,,	M	,,	O.F.	16-1-17	—	Sinus extending to capsule of joint.
D297	,,	M	,,	O.H.	17-1-17	—	Slight necrosis of skin.
D739	,,	G	,,	O.H.	17-1-17	—	Extensive necrosis present. Wall and sole underrun.
D332	,,	M	,,	O.H.	18-1-17	—	
D302	,,	M	,,	O.H.	18-1-17	—	
D749	,,	M	,,	O.H.	18-1-17	—	Extensive necrosis present, flexor tendons involved.
D837	,,	G	,,	O.F.	19-1-17	2-2-17	Extensive necrosis of flexor tendons. Destroyed for open pedal joint.
D831	,,	G	,,	O.H.	19-1-17	—	Very lame. Flexor tendons involved.
D942	Grey	G	,,	O.H.	20-1-17	—	
D827	Bay	G	,,	N.F.	20-1-17	—	Piece of os pedis detached. Flexor tendons involved.
D154	,,	Mule	,,	N.F.	20-1-17	—	

A GRAPHIC METHOD OF RECORDING LAMENESS.

By R. C. G. HANCOCK, Capt., A.V.C.

This method depends on the observable fact that the degree of lameness evinced by a horse is reflected in the pattern made by his hoofs in trotting over soft ground. Moreover, the degree of lameness can be determined from these footprints with a fair degree of mathematical accuracy, with no more complicated instrument than a tape measure. A series of such observations made from day to day in any given lameness can be translated into a graphic curve that is often of very material assistance to the surgeon in diagnosis and prognosis ; in recognition of progress or retrogression with a greater delicacy than the eye ; in the discovery of imminent complications. A number of lamenesses appear to possess each some peculiarity when their course is plotted, such as a typical curve, easily recognised. This may prove of great diagnostic value in some of the more obscure and rare forms of lameness.

It has long been recognised that in the making of a step the limb performs two distinct actions of equal duration in a sound horse. One is the swing of the limb from the ground forward until it again comes to rest. The other is the period when the foot remains in contact with the ground. The former one terms the swing, the latter the support phase. A horse showing lameness in one or the other will be said to suffer from swinging lameness, or supporting lameness.

Fig. 1 represents the footprints of a sound horse at the trot, the fore feet only being shown for greater clearness. The off fore B comes to the ground, and whilst there in support, the near fore goes through its swing phase from A to C. So also the off fore swings B to D in its turn. In regard to this swing, say of the near fore, it will at once be seen from the diagram that it may be divided into two parts, A B and B C, of equal length, the position of the opposite foot at B being the point of measurement.

Let us call the portion of the swing A to B the "approach" swing, and from B to C the "departure" swing.

Now, turning to consider the footprints in lameness, first take a case of supporting lameness, where the pain is evinced whilst the lame leg is on the ground. The animal endeavours to shorten this painful period, and so accelerates the swing of the sound foot. If the lameness be on the near fore, then, as shown in Fig. 2, the sound off fore comes sooner than usual to B, and the distance A B will be found shortened considerably in consequence, so freeing the lame leg of its supporting function, and allowing it to commence its swing. Now, the swing being without impediment and pain, is of normal length. But the portion A B is already shortened, so that B C will appear proportionately increased.

We may, therefore, formulate a rule :—"That in supporting lameness the *approach* swing of the lame limb appears in the footprints to be shortened in direct proportion to the degree of lameness."

In the case of swinging lameness (of the near fore again, Fig. 3), the near fore endeavours to swing from A to C, but the swing is shortened owing to the pain involved, and the print falls short of normal. Therefore B C is shorter than A B.

In other words :—" In swinging lameness, the *departure* swing of the lame limb appears in the footprints to be shortened, in direct proportion to the degress of lameness."

Take now an example. A horse is lame from a bruised sole on the off fore. A strip of soil having been lightly rolled or beaten, so as to

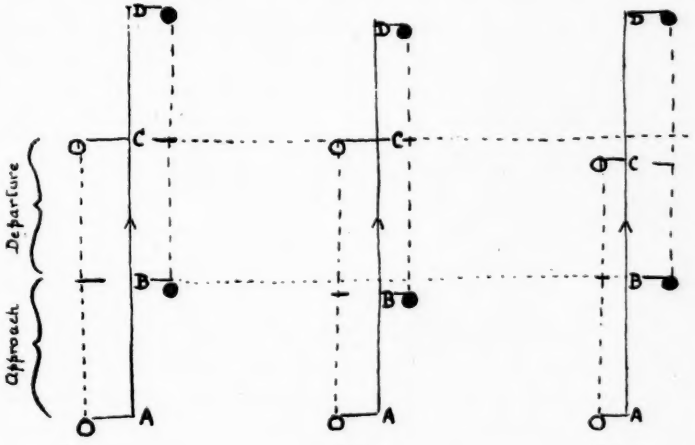

FIG. 1. Soundness.

FIG. 2. Supporting Lameness.

FIG. 3. Swinging Lameness.

show a clear footprint, without impeding movement, and about 15 yards long, the horse is trotted steadily over, and if he has made four or five steps without shying or otherwise impeding the footprints, these may be measured off with a tape measure, and the distances from one hoof (measured from the toe) to the next recorded. The four averaged up showed that from off fore to near fore the distance was 39 ins., and from near fore to off fore, 43 ins. Thus the approach swing of the lame limb is shortened, showing supporting lameness. The stride is 39+43=82. Bringing this always to a common figure of 100, we find the approach swing is 47·55 per cent. of the total. But it should be 50 per cent. of the total if the horse were sound. Therefore,

we are dealing with a 2·45 per cent. lameness, roughly 2½ per cent. A daily record from now will readily shew whether resolution, or some complication as suppuration is likely. For purposes of description when recording cases in periodicals such a method is invaluable. One soon begins to get a pretty shrewd idea, when a lame horse is trotted, what his "lame percentage" is.

It is hoped later to publish a series of cases recorded graphically by this method; meanwhile, the publication of this method may induce others to commence the recording and plotting of both common and uncommon lamenesses, so adding to our knowledge of one of the most difficult branches of the veterinary art.

INTERESTING CASE IN A FOAL.

By Lieut. H. FRASER, A.V.C., Bideford.

On July 26th I was called upon to attend a Shire colt foal about three months old, which was being got up for show. The foal on being haltered fought a good deal, and was rather troublesome. Time was short, foal backward in condition, and a liberal diet of a ready-made mixture of oats, beans, maize, etc., was being fed.

On examination, foal was extremely tender and painful over abdomen, and remained so all through the case. No flatulence, and no motion from bowels. Almost continually grunted, and gave an occasional cough, but still sucked his mother and willing to feed. Pulse 84; temperature 103⅗; and respiration hurried. Near hind limb swollen up to the hock.

Diagnosis.—Congestion of bowels, due to overfeeding. I have several times seen cases in foals of what I considered to be a general congestion, and thought this one of such. The cough caused some thought, but I could find no evidence of lung trouble, and put it down to stomach.

Treatment.—Colt was in a very clean, well-ventilated box. Mare brought in every two hours for him to suck, which he did greedily, and was allowed no other feeding. Gave a light dose of linseed oil and stimulant. Left two doses of æth. nit. and spirits ammon. aromat. —one for that evening and one next morning.

July 27th.—Foal much the same. Occasionally showed slight colicky pains. Still sucking. Gave enema, but no result. Left some powders containing each Sod. Bicarb., Pulv. Gent. *a.a.* 3i½ P. Nux. Vom. 15 grs.—one every four hours in linseed gruel. Called back early afternoon, as owner considered foal worse. Did not think so, and found foal had passed on two occasions about a pint of liquid fæces, very foul, and contained practically no solids.

28th.—Foal seemed a little better. Pulse 72; temp., 101½° F.,

but no bowel motion ; repeated enemas, no avail. Urinated naturally, still giving occasional cough, especially when drenched. Advised attendants to drench most carefully, but still could detect no lung trouble.

29th.—Foal much worse, and distinct evidence of lung trouble. Still sucking mare. Pulse 84 ; temp. 104½° F. No bowel motion. Applied hot fomentations over chest and abdomen to satisfy owner, but was very reluctant to do so, as weather so hot. Gave ʒi doses of Aeth. Sulph. every two hours. Drenching in pneumonia I know is bad treatment, but by now I considered case fatal, and owner one who could not be satisfied unless he saw a lot being done.

30th.—Foal worse. Pulse 120 ; temp, 104½° F. No bowel motion. Still sucking mare. Fomentations stopped.

31st.—Dead on arrival.

P.M.—Intussusception of small bowel in two places. In anterior portion about 16–18 ins. of bowel displaced and posteriorly about 3 ins. lungs showed severe symptoms of broncho-pneumonia.

This to me was a most interesting case, as I had never seen one of intussusception before. I am also a little puzzled as to inception of pneumonia. Was it traumatic from drenching, or did it supervene during course of condition ? I am inclined to think it was the latter, as attendants were most capable and warned to be careful. Had the pneumonia not set in I believe foal would have lived some days longer before death resulted from intussusception.

CANINE, FELINE, AND PORCINE CASES.

By G. MAYALL, M.R.C.V.S.

(1) An Aberdeen terrier, brought to me by a man who had been medically attended for some time for lung trouble. The dog had a husky cough, noticeable most when running about or excited ; temperature 102 1-5th ; pulse 90 ; respirations 30 per minute. He had been gradually losing flesh for about six weeks. On opening his mouth, a nodule, which I assumed to be tuberculosis, was visible about two-thirds of the way down the palate ; digital exploration of the pharynx and larynx revealed another nodule on the back of the larynx. The dog was destroyed, and there were pleuritic effusion in chest, nodules on the pleuræ and in the liver.

(2) A black Pom, with a persistent cough, belonging to an old lady, who had resided in Russia for some years, was brought to me for examination. For a little dog the cough was about the loudest I have ever heard. Nothing visible in the mouth, but at the back of the throat white tenacious mucus could be seen. Digital examination of the pharynx and larynx revealed three nodules on the

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base of the cavity. The Pom was destroyed, as he was evidently tuberculous.

(4) A Welsh terrier, running at the nose and eyes (probably distemper). I called it bronchial catarrh and conjunctivitis. Temperature 102; pulse 90; respirations 20; no cough. Treated by cleansing the nose and eyes with cotton-wool and smearing eucalyptised vaseline on them twice daily. Internally, ½ drachm doses of elixir terpin. co. (terpin. hydrate ½ grain, aceto morph. hydrochlor. 1-96th grain). Recovery in three weeks.

(5) A black mongrel dog (about double the size of a Schipperke), discharging at eyes and nose. Temperature 104; pulse 100; respirations 40. Diagnosis as in case 4. Gums bleeding. Dressed the mouth daily with a solution of adrenalin and witch hazel. Cleansed the eyes and nose with wool and applied eucalyptised vaseline twice daily. Internally, elixir terpin. co. ½ drachm, liquor am. acet. ½ drachm, twice daily. Recovery in three weeks.

(6) Barred cat, nearly at full term of pregnancy. Had the hook of a watch-chain inserted through the tendon just above the hock, Pushed the movable piece of the hook down, and turned the hook out, cat being hooded with a leather hood, and paws firmly held.

(7) A barred tomcat, the property of an M.P., suffering from two punctured wounds, one between the ears and the other penetrating through the lower eyelid into the conjunctival sac. Copious purulent discharge from the corner of the eye which persisted for six weeks. This cat was under treatment from December 16th, 1916, to February 5th, 1917, and the wounds caused much trouble in healing. They were both badly infected, and the cat was chloroformed three times to dress them and curette the bone. The dressings used were iodoform and boric acid, hydrogen peroxide and protargol for the conjunctivitis, zinc sulphate and (finally) pure iodoform to heal the wound in the eyelid. A complication that arose was what appeared to be a tumefied orbital gland at the inner canthus of the eye. This was treated with a solution of boric acid, zinc sulphate and adrenalin, and causticed twice with pure nitrate of silver, and finally the cat recovered.

(8) A large white sow, pigged seven weeks, with a tumefied and inflamed vagina (which I had attended at a previous pigging for the same complaint). Inserted one of Burroughs, Wellcome & Co.'s Enule corrosive sub. bougies (gr. 1-25th), and next day and subsequent day owner syringed the sow out twice daily with mercuric iodide solution, 1 in 2,000. She made a nice recovery. Here the little pigs had been weaned, otherwise, perhaps, the medicaments used might have been dangerous to them.

(9) A beautiful, large white sow, first time of pigging. Sow ill, lying on side, temperature 103, a nasty, bad-smelling muco purulent discharge from the vagina; difficulty in urinating; some blood at times mixed with the discharge. I inserted a corros. sub. bougie, and at night washed passage out with a solution of hydrogen peroxide and hazeline. Three days after sow better; inserted another bougie, and washed out as before. Ordered linseed tea in the diet and, later on, buttermilk. She made a good recovery. The B., W. & Co. bougies are very handy, and can be used on all our patients; they are also very effective. Internally the sow had 2 drachms of an electuary three times daily, composed of sodium hyposulph. am. chor., and glycerrhiza.

"TIPS" ON CAMELS, FOR VETERINARY SURGEONS ON ACTIVE SERVICE.*

By A. S. LEESE, M.R.C.V.S.

Gross Parasites of the Camel.

I regret that, as all my notes are in England, I cannot give in full the modern names of all the camels' parasites; helminthologists, please excuse. The object of these notes being to assist clinicians, the subject can be briefly dealt with in the form of a list :—

Internal Parasites.

Œstrus cameli, the camel-bot, lives in the naso-pharynx, and is sneezed out in spring and autumn. Quite harmless in themselves, but I suspect them of admitting anthrax occasionally by the punctures they make.

Hæmonchus longistipes, found in abomasum and closely resembling the well-known H. contortus of sheep. Very common in India, and seems harmless.

Nematodirus spathiger, round worm of duodenum.

Ostertagia mentulata, small worm, gastro-intestinal.

Other round worms, also without clinical significance as far as one can judge.

Trichocephalus echinophyllus, of large intestine. Have been unable to find appreciable clinical damage.

Distoma hepaticum and *Distoma lanceolatum*.—Never seen in quantities able to cause "rot."

Tænia expanse, *Tænia centripunctata*, and *Tænia globipunctata*.—These tapeworms are met with in camels.

Echinococcus cysts are extremely common, and generally do no damage to health. I have, however, noted one case of death from suffocation due to the whole lungs (liver also) being crammed with

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* For previous instalments, see page 79 (March) and page 136 (April).

cysts. The symptoms were :—Dyspnœa and emaciation ; there was no cough ; appetite and temperature normal.

Cœnurus cyst.—I believe a case is on record.

Linguatula larvæ (and cystic forms) are found frequently in the mesenteric glands of camels in India. The dog (and probably, also, the jackal) is, of course, the host of the adult, which lives in his nostrils. In camels, the larvæ make galleries between the nedulla of the gland and the peritoneal cavity, and I have evidence which indicates that it is by this channel that the occasional passage of bacteria from the intestine to the peritoneal cavity is made possible, and I regard linguatula larvæ as the indirect cause of the frightful disease of the camel which I described under the name of " Specific Peritonitis " some years ago.

Strongylus filaria is sometimes found in the bronchi. In the Nile delta the disease " husk " is a recognised camel-ailment, and was described by Piot many years ago. He stated that intratracheal injection of the usual character proved a good treatment. The symptoms were very much as with sheep ; some camels get pure bronchitis, others broncho-pneumonia. Elsewhere than in Egypt, " husk " is rare as a camel-disease. I have met with one camel in India which had a mild cough, which got better without treatment ; he was, subsequently (on being killed because of surra), found to harbour a few of these worms. I have had a description given to me by an old camel-breeder in the Indus delta region of a disease suggestive of " husk."

A bilharzia was found in the mesenteric veins of the camel by me in India, but was unassociated with disease as a rule, and only with " debility " when in enormous numbers. I cannot recall its scientific name, having no notes here. It has not yet been found affecting the urinary tract.

Filaria evansi lives in the arteries of the body, more particularly in the spermatic artery. The adult female pours its embryos into the circulating blood, where they are easily seen in a fresh preparation taken from the tip of the ear. In searching for them, a two-thirds or " A " objective is a convenient magnification, and they are most numerous, generally, along the edge of the preparation. There is a great discrepancy in the accounts of camel filariasis in different countries. I have studied the condition in India, and have also made observations on the Arabian parasite, and the affected camels, as a rule, are not the worse for the fact that they carry the parasite ; the only damage I have ever been able to note is a debility when enormous numbers of embryos are present in the blood ; and it is only in a very small percentage of hosts that such large numbers of embryos are found. I have no hesitation in asserting that the Indian camel-filaria is not a

parasite of economic importance. In Egypt, however, Mason has come to the conclusion that the disease causes a recurring fever, especially in camels at work, and seriously affects the efficiency of camels. A possible explanation of the discrepancy may be that the two filariæ are perhaps not identical; if so, it is curious how alike they are anatomically and in habitat. Many drugs have been tried against filariasis in camels, but without any effect on the parasites.

Thelazia Leesei is found in the conjunctival secretion, and is very common. I consider that it is only very exceptionally capable of causing eye-trouble.

Onchocerca fasciata is the worm found coiled up in the subcutaneous "worm-nodules" of camels. The nodules are very conspicuous in Sudanese camels. They are harmless.

EXTERNAL PARASITES.

Lice.—A hæmatopinus of large size is found on camels. It is sometimes the cause of irritation in long coats in cold weather, and may be treated as for lice in other animals, or left alone until warmer weather Kerosene emulsion is a very efficacious remedy.

Ticks sometimes cause thickening of the skin in groin and axilla; in the latter case they may cause a fold of skin to form, which gets sore when squeezed between foreleg and body during locomotion, and so sets up a form of "blushing." In either situation the skin-thickening may be mistaken for mange. In rainy seasons, African camels infested with ticks and neglected may get a "fly-blown" ulceration below the anus which is intensely disagreeable to deal with, and dangerous to life if not vigorously treated. Ticks on the eyelids of camels may irritate the animal until by rubbing against trees, etc., he sets up conjunctivitis. There is no true "tick-borne" disease suspected in camels. Riding-camels should be de-ticked as a routine of stable management.

Sarcoptis cameli is the cause of mange, of which camels have only one form. I do not propose to describe camel-mange in this article, for various reasons. I shall only say that it is the second camel-disease in importance, and that the secret of dealing with it is in early diagnosis. The Army has had much experience of it.

Hippobosca cameli is the "forest-fly" of camels. It is met with in Africa, Australia, Baluchistan, Sinde, and Dera Ghazi Khan, but I have never seen it east of the Indus in the Punjab. The flies live chiefly about the groin. Experience shows that, although they are blood-sucking flies, they stick to their host too closely to be of any practical importance in spreading trypanosomiasis. They are common in certain countries free from trypanosomiasis, and absent from huge tracts full of the disease.

Nursing Sick Camels.

Generally one's first care is to get the camel into the shade if possible. If not very ill, he may be allowed to potter about grazing a little close at hand in the cool hours of the day. If green meat is obtainable, well and good. If branches of trees are brought in to give to a sick camel, it must be remembered that he can get no purchase on them lying loose on the ground, and so cannot strip the leaves off; either a man should hold them for him, or the branches should be roped down at their thick ends. Such branches should be of trees without thorns, if obtainable. A camel has to be pretty bad not to eat a grain ration offered to him (if he is used to grain). Feverish or thin camels require jhools, or protection by sacks sewn together, on cold nights. In pneumonia and other fevers, in lameness of shoulder, hip, or hock, and in injuries to pads, it is very detrimental to tie the camel down in the sitting position at night, as the poor beast will get no rest. The best way of tying camels in sick lines is by a loop around the neck to a picketing rope along the ground, with sufficient length for the camel to stand if he likes; this enables him to turn round with the sun during the day. Draughts are given by pouring into the side of the mouth whilst a man grasps the lips of the camel and opens the mouth skywards. Time should be given to swallow. When a long case is frequently being dosed, a tap on the head immediately before pouring in the draught is quickly recognised as a signal that it is coming, and the end of an expiration is the time to pour. The vessel should have an open mouth, and be narrow enough at the top to get easily into the commissure of the lips; a cylindrical tin with its opening squashed in a little from side to side is as good as anything. Camels are frequently choked by camelmen who grasp the upper lip so high up as effectually to close the nostrils; all camelmen about a sick line should be taught to catch the lip nearer the end, so as to leave the nostrils free. In India, in several *post-mortems* done for camelmen, I found death due to taramira oil having "gone the wrong way."

A bolus for a camel is made the size and shape of a cricket-ball, and thrown down into the pharynx at the end of an expiration. All the gruels used for sick horses are useful for sick camels (linseed, oatmeal, wheaten flour, rice, etc.). A good nutritive is 1 lb. flour, ½ lb. ghee, and ½ lb. gur, made into boluses. Soup of a fat sheep's leg is a favourite Somali remedy, and there are many worse ones. Bran mash is liked by some camels, not by others; plenty of salt makes it more palatable.

There is no large animal so easily tempted to eat, when inclined to be "off his feed," than a camel. One man's duty in sick lines would be simply to go along offering food, and even placing it into the mouth of camels refusing to eat of their own accord. Camels are often started

back on to their feed in this way. When holding branches for a sick camel to strip leaves from, it should be turned after every mouthful, so as to present the best bunch of leaves towards the animal.

Water should be offered twice daily to sick camels, although they will generally refuse it.

Drugs used in camel-practice and their doses.—I exclude the treatment of trypanosomiasis, as it is outside ordinary practice. It is not necessary to have a lot of drugs for use on camels. *Internally*, I find the following drugs of great use for general work, and most of them are cheap:—

Mag. Sulph.—Dose, 1 lb. as laxative; 1½ to 2 lb. as saline purgative, for ordinary purposes; 3 lb. as a purgative, for suddenly-occurring brain and spinal troubles. I prefer not to use salt with it, because of the thirst that results from giving big doses of salt.

Ammon. Carb. is regarded by camelmen who have seen it used much for broncho-pneumonia as a specific for that disease. It is a very effective remedy, probably because it assists expectoration—no small matter if you have a neck as long as a camel's. Dose, 4 to 6 drachms, in bolus.

Iron tonics are of decided value in what is usually called "debility" but is more often in the camel, anæmia. Dose as for cattle.

Linseed Oil.—Dose to purge: 2 quarts. On active service it is rather too bulky, and linseed tea can sometimes take its place as a vehicle.

Oil of Turpentine, used with ammon. carb. and linseed oil, cures most cases of tympanitis. Dose: 1½ ozs. or 2 ozs.

Kamala, as a purgative. Dose: 7 ozs. in linseed tea.

Chlorodyne is a good anodyne for camels in pain, and gives good results in practice in doses of 6 drachms to 1 oz.

Strychnine salts are valuable for putting new life into camels that sit down on the march owing to fatigue or sickness; and is a good stimulant in many diseases, the effect of small doses being very perceptible on the pulse. Hypodermically given, dose should be 1 to 1½ grains; never more than this, owing to the varying degrees of tolerance to this drug which camels possess.

Eserine and Pilocarpine, 2 grains of each hypodermically act well; but eserine alone is useless. I have never tried arecoline for producing quick purgation in the camel; very likely it would act better.

Rum is a good general stimulant in collapsed animals which have been exposed to cold rains or cold winds and have difficulty in rising. Dose: 4 ozs., and repeat in 1 hour. I think great benefit results by giving rum or whisky frequently to camels suffering from "stroke," the spinal trouble which sometimes suddenly afflicts camels, and is known as "Hawa," "Shimber," etc., by camelmen.

Potassium bromide, Chloral hydrate, Chloroform, Cocaine, Sodium Bicarbonate, Chiretta, and *Catechu* are handy drugs.

Externally I prefer the following remedies :—

Taramira oil (called Jambu in Sinde), made from Brassica eruca in India. This is the best remedy for mange. Failing it, sarson (" sim-sim ") oil and sulphur may be used. Lime and sulphur sheep-dip has its use in delaying the spread of mange.

Hydrarg. perchlor. and *Potassium permanganate,* because they are easily carried.

Boric acid, for dry dressings ; *Fuller's earth,* for same.

Cresol, as it keeps flies away from wounds.

Carbolic acid ; Carbolic soap ; Carbolised oil.

Kerosene, used in emulsion.

Boric Vaseline ; Vaseline.

Turpentine.—A little mixed in vaseline is the best protective application for wounds against flies, and as a stimulant to slow-healing, sore backs.

Hydrarg. Biniod. should be available for use as a blister ; *Mustard ;* a little *Tincture of Iodine,* for use in operations ; and *Stockholm Tar.* I have hardly any use for cotton-wool and bandages in camel-practice ; but *tow* and *gauze* are both necessary ; *brushes* for applying pure carbolic, etc., are useful. I doubt if that excellent dressing, Hypochlorous acid, would be much use in hot climates in the open, but have never tried it outside Europe.

Useful Instruments.—In the field most of the ordinary instruments in the veterinary wallet are useful, but a strong pair of dressing-forceps is absolutely essential. The camel veterinary surgeon should also have a large allowance of half-minute thermometers—at least ten or twelve. No Symes' knife will last long in camel work, and a second strong scalpel should be substituted. Besides these, the field-man should have a mouth-gag (the £1 1s. equine one is suitable, which works with a thumbscrew) ; an equine tooth-rasp ; a small saw to use, with one hand, on tushes ; bullet-forceps ; necrosis forceps ; curette ; bistoury ; an equine trocar and canula ; and two pairs of curved scissors. An enema pump is not necessary unless there is sand-colic to deal with.

A small microscope, with two-thirds and one-sixth objectives and No. 4 eye-piece, but no condenser, is essential if any good work is to be done with camels in the field or elsewhere. Messrs. Baird and Tatlock make a very light instrument for £5 complete, and suitable in every way. I have used it in the field under every conceivable condition. Slides and cover glasses, but no stains, are required.

Camel-hospitals ought to have a respectable equipment for micro-

scopic examination of blood; possibly, also, for cure of trypanosomiasis. Every shape of curette, necrosis forceps, and bone-forceps is useful; a small trephine; a "castrator"; an ecraseur; tooth-shears: and some line firing-irons.

Œdema in camel-practice.—I purposely omitted the fact that œdema about the belly and pedestal is occasionally met with in trypanosomiasis; the reason I did so was to impress the fact that it is irregular appetite on the grazing ground which is the characteristic symptom of that disease in camels, and not œdema, which is less seen in this species than in other animals affected with trypanosomiasis. Nevertheless, œdemas do occur in camels with trypanosomiasis, and the most common form is an œdema about the base of the pedestal, the skin pitting on pressure although there is hardly any visible swelling. Œdema in male camels may be found about the lower part of the belly and chest in pneumonia, pericarditis, and pleurisy, or any febrile disease where the heart's action is weak; sometimes in trypanosomiasis; sometimes after dressings for mange; and in Indian camels is generally of pathogenic origin. In Somali camels and others accustomed to live for long periods without water, œdema of these parts is sometimes physiological, and is seen for several days after a big drink following a long period of abstinence from water; the Somali camel can temporarily store water in the form of visible œdema.

In future articles there will be a short description of the non-contagious diseases of the camel from a comparative clinical standpoint, and of his surgical diseases of all sorts.

(*To be continued.*)

Translations.

EPIZOOTIC LYMPHANGITIS IN FRANCE: ITS DIAGNOSIS AND TREATMENT.

By J. BRIDRÉ

J. Bridré, writing in ***Bulletin de la Société Centrale de Médecine Vétérinaire***, calls attention to a disease rarely seen in France before the war, not well known by a great number of veterinary surgeons, the spread of which is beginning to become rather disturbing. Epizootic lymphangitis has been imported into France by horses from our North African Possessions. It is too soon, and the records fail, to appreciate the gravity of the infection, but, nevertheless, the malady is of a grave character among certain units of the Army, and particular stables are badly infected.

The symptoms are well known: hard, corded and tender lymphatics running towards the glands, which are hypertrophied and

suppurating, beaded, nodular elevations, ulcers with labiate borders, thick and creamy pus.

Malleinisation enables a clinical distinction to be made in the great majority of cases between epizootic lymphangitis and glanders.

But the reactions may be doubtful; the cryptococcus of lymphangitis may be found on lesions simulating the ulcer, due to the bacillus of glanders—in these cases, the clinical elements of differential diagnosis have an originating importance. The aspect of lesions budding at the edges, turned in, rounded, the nature of the thick and creamy pus, make the diagnosis clear, even in ailing subjects where the cords are obscured in a diffuse engorgement, and where the buttons and the ulcers are regularly divided without being disposed in the form of beads. The glanders ulcer is cut out perpendicularly, the ulcer of epizootic lymphangitis is rounded, its edges are thick, and stand out in relief. The lesions of ulceritic lymphangitis have granulating but not inverted edges; they are deep, and exude a yellowish, blood-streaked pus. Their evolution arises from corded lymphatics, never as hard and voluminous as those of epizootic lymphangitis.

The differentiation between sporothricosis and epizootic lymphangitis can only be made by bacteriological procedure; their clinical manifestations are quite similar.

For the rest, sporothricosis is exceptional in France; it is controllable with the same efficacy and by the same treatment as epizootic lymphangitis. Microscopic examination completes the diagnosis. Preparations in the fresh state reveal the cryptococci of epizootic lymphangitis under the form of ovoid bodies, 3 to 4 microns in diameter, free or intracellular, with a very refracting envelope accentuating a double contour; generally they are numerous. Sporothricelium are not without analogy of form to cryptococci, but they have no double wall, they are often rare in the preparations. As between glanders and ulcerous lymphangitis, examination in the fresh state—which is usefully made with a magnifying of 400 to 500 diameters—does not furnish any information. The presence of their agents can only be revealed by colouration or cultures.

Bridré summarises the treatments which have been in vogue for some years in order to avoid the great havoc caused by surgical intervention, often difficult and ineffective (intravenous injections of iodide of potassium, electrargol, local injections of tincture of iodine and intramuscular injection of methylene blue.)

Bridré, Négri and Trouette have obtained excellent results from intravenous injections of arseno-benzol. Novarseno-benzol is much more convenient to use, and is quite as effective (Houdemer). Bridré recommends a dose of 2 to 3 grammes dissolved in 20 c.c of distilled

water. The injection is made in the jugular; one must carefully avoid injecting any of the liquid under the skin. The effects are rapidly appreciable; cicatrisation of the initial lesions, diminution in size of the cords, appearance of fresh buttons, softening and opening of existing ones. Cure is assured at the end of three weeks; if at this period the initial wound has not cicatrised, and the cord persists, one renews the injection.

Cure is aided by opening abscesses, treatment of wounds, cauterisation of granulating wounds. The effectiveness of the treatment is established by a record of nine cases given by the author.—*Revue Générale de Médecine Vétérinaire.* G. M.

TORSION OF THE UTERUS IN A BITCH—HYSTERECTOMY CURE.

By R. CHOLET,

Veterinary Surgeon at Royat les Bains.

THE subject of this note, an active bitch of the smooth-haired variety, aged 4 years, was noticed by her owner at the beginning of September to be pregnant. He was not, however, aware of the date of her conception. About September 13th the mammæ filled. On the 14th the bitch showed at intervals acute pain which continued until the 18th. Appetite lessened. The vulva was not enlarged, nor was there any discharge from it. On the 19th the pains appeared to diminish, appetite somewhat better, but the abdomen was ballooned and sensitive to the slightest pressure. The milk disappeared. On September 23rd Cholet saw the bitch and found her almost prostrate. Membranes very pale, the abdomen very large and painful to manipulation. The left half was particularly distended; vaginal exploration revealed neither discharge nor a fœtus. A diagnosis of maternal dystokia with metro-peritonitis was now made. Laparotomy was suggested and undertaken on the following morning, with the aid of Mon. G. Bouchet. Anæsthesia was by means of atropo-morph. et chloroform. On account of the enfeebled condition of the patient an injection of 100 c.c. physiological salt solution was made.

Incision of 15 cm. on the white line. The abdominal cavity being opened there was an escape of sero-sanguineous fluid. There was a localised peritonitis and the omentum was strongly injected. The uterine horn which came first into view was gravid and partially gangrenous and had formed adhesions with all neighbouring organs, particularly the bladder. An attempt was made to disengage these adhesions, and in doing so a finger punctured the horn; through this opening a fœtus and fœtal fluid was removed. This done, the operation of disentangling the organs was more easily proceeded with, and the

outline of the uterus can be more easily followed. The left horn is seen to be empty. The right encloses two fœtuses. It has made a half turn on itself, taking with it by its weight the left in the movement. The body of the uterus has also undergone a half twist, and owing to the close adhesions it had formed, it was impossible to return it to the normal position. Hysterectomy was now performed, the abdomen washed with normal saline, the abdominal wall sutured with silk, the skin with horsehair.

The patient became very cold, explainable by the large surgical wound and the duration of the operation (time occupied not stated). She was placed in a box containing straw and a hot water bottle, and was well clothed. She came round quickly, but is very pale and cold. She received a further injection of 100 c.c. physiological serum with caffeine. On the following morning another injection of 100 c.c. and she is given a little milk and shreds of meat. During the next few days her condition improved. The wound healed partly by first intention, partly by suppuration, because the patient tore off all the bandages. Fifteen days after the operation the bitch was returned to her owner and has since remained in good health.

The author remarks that in all such cases surgical treatment at any stage does not carry with it more risks than waiting treatment, the results of which are so often disastrous. L. V. K.

Recueil de Med. Veter. December, 1916.

Abstract.

VESICULAR STOMATITIS IN THE HORSE.

From the "Journal of the American Veterinary Medical Association" we learn that a disease involving the mouths, and more particularly the tongues, of horses and mules, has been found among the animals gathered together at Grand Island, Nebraska, and Denver, Colorado, by the French and English Government agents for shipment abroad.

The contagiousness of the disease necessitated local quarantine, the separation of the sick from the healthy, antiseptic mouth washes, and cleansing and disinfection of pens.

The disease spread to cattle, and foot-and-mouth being suspected, the usual precautions were taken. Vesicles and blisters forming erosions, chiefly on the tongue and occasionally involving the rest of the mouth or muzzle, are the prominent symptoms.

No soreness in the feet of any of the subjects attacked was noted. Hogs exposed to infection did not contract the disease, sheep also were immune.

There was local, but no systematic infection and rise of temperature as in foot-and-mouth. Passage of the disease through calves did

not increase its virulence as is the case in epizootic aphtha. Vesicular stomatitis closely resembles foot-and-mouth disease—more closely, it is written, than mycotic or necrotic stomatitis.

Reliable diagnosis is only made by experimental inoculation and observations over a number of days.

It is suggested that horses be added to the experimental animals (calves and hogs) inoculated with suspected material, in order to differentiate between this malady and foot-and-mouth. We are informed that this ailment has also been recently recorded as "Erosive Stomatitis" by Monsieur Jacqoulet, in France.

In a recent letter from Dr. D. M. Campbell, editor of the "Amer. Jour. of Vet. Med.," an interesting remark occurs. He writes, "Thanks to the army veterinary legislation which the last congress enacted into law, the veterinary profession in America will be in a much better position to render effective service to the military forces than it would have been at any time heretofore, and it is believed, should hostilities actually break out, that an independent veterinary corps of the Army will be quickly formed. The present veterinary department is nominally under the direction of the medical corps, although in reality it is essentially independent."

Correspondence.

SNORING IN CATTLE.

To the Editor of The Veterinary Journal.

Dear Sir,—In your issue of January of this year, I notice an article by Mr. J. H. Parker on "Snoring in Cattle." Just a generation ago, when I was a pupil with Mr. Jos. Donald, of Wigton, this disease was very prevalent, and for the last thirty years I have been treating it in the fashion he taught me. The process is as follows: Two men catch hold of the patient, the man on the left side putting his right arm down between the horns and catching the nose with his right fingers, while with his left hand he grasps the horn on that side. The other man holds the right horn, both men putting their backs against the animal's shoulders. The operator then grasps the tongue in his left hand, using a rough cloth, and runs his right arm down the throat, turns the palm uppermost, and will find the abscess lying in his hand in nine cases out of ten. I prefer opening the abscess with the finger nail, which can be done in nearly every instance, to using a knife, although I have had a good concealed knife made for the job.* If opened in this way the abscess is not so likely to recur, as one tears it open instead of having a clean cut wound, which may heal too quickly and the abscess fill again. There is little or no risk attending this operation if the men keep the patient's

* If a concealed knife is used it should be lashed round the wrist.

head straight and the operator is quick on his feet. In smaller cattle it is necessary to use a long hooked knife as the throat may be too small for the hand and arm. I have done probably a thousand cases like this, and can speak from experience. If the abscess is not ripe it is better to blister the throat and wait a week or so.

I get your journal here every month and pass it on to some of my American friends. I am here doing remount work.—Faithfully yours,

E. C. WINTER, F.R.C.V.S.,
Limerick, Ireland.

Stockyards Hotel,
Indianapolis, Ind., U.S.A.
February 24th, 1917.

Board of Agriculture and Fisheries,
4, Whitehall Place, London, S.W.1.
April 18th, 1917.

No. A1554 1917.

To the Editor of THE VETERINARY JOURNAL.

SIR,—I am directed by the President of the Board of Agriculture and Fisheries to inform you that the Board have had under consideration the possibility of attempts being made by enemy agents to spread disease amongst animals by means of infective material. Mr. Prothero therefore considers it desirable that the attention of Veterinary Surgeons should be called to the matter with the view of their making special enquiries in the event of multiple outbreaks of disease coming to their notice, and reporting to the Board any such cases, together with any suspicious circumstances connected therewith.

I am, Sir, Your obedient Servant,
W. H. CHAMBERLAIN (for Secretary).

Reviews.

ANNUAL REPORT OF THE BENGAL VETERINARY COLLEGE AND OF THE CIVIL VETERINARY DEPARTMENT, BENGAL, FOR THE YEAR 1915-1916.

LIEUT.-COL. A. SMITH sends us this Annual Report. Whilst Principal of the College and Superintendent of the Civil Veterinary Department during the year, good and valuable advance has been made. Seventy-one students went through the full College course, all of them attended riding classes, and six secured prizes for equitation; 30 students attended a special course of lectures on the infectious diseases of cattle. The College lost a very competent bacteriologist by death in the person of Mr. S. N. Mitra, but Mr. D. Dey took up a large part of the work, and the Raymond Research Laboratory had a busy year of examinations and investigations. Infectious diseases were illustrated by a series of lantern slides, and the demonstrations thus made more interesting. Experiments were made with an auto-vaccine in cases of mammitis. During the year 2,810 patients were treated and 1,246 operations performed; 523 animals were sent to the College hospital by the magistrates trying prosecutions under the Prevention of Cruelty to Animals Act. Mr. R. V. Pillai, a member of the College staff, volunteered as a

veterinary supervisor in charge of animals on transports sailing from Bombay. He did his duty well and his services were much appreciated. Glanders, surra, rinderpest, anthrax, and rabies were well looked after by the Epizootic Diseases of Animals Department, Calcutta.

The Civil Veterinary Department suffered somewhat from changes due to the war. Mr. P. J. Kerr, I.C.V.D., took a commission and was appointed to the Indian Army Reserve Officers, and Mr. A. D. McGregor also joined up.

A native superintendent was appointed under Lieut.-Col. Smith, and the work of the department was carried on. Contagious diseases in horses and cattle diminished as regards cases, and the number of outbreaks was fewer. Rinderpest, hæmorrhagic septicæmia and foot and mouth disease caused the most fatalities. The inoculations against rinderpest were 38,950, and against hæmorrhagic septicæmia 2,029, and, as usual, vast distances were traversed and numerous journeys undertaken by the veterinary staff. The established local hospitals and dispensaries did good work. The report is a record of full activity in a wide field. G. M.

L'Abattoir Moderne, 2nd edition, by Dr. A. Moreau, Senior Veterinary Surgeon, Chief Inspector at the Abattoirs of La Villette, Paris.

The second edition of "L'Abattoir Moderne," by Dr. A. Moreau, is a book compiled by a master, well written and containing all the up-to-date information concerning improvements in the construction, mechanism and installation of refrigerating appliances which an establishment ought to possess to fulfil all the exigencies of hygiene, and to facilitate sanitary inspection. The book will not only interest architects, engineers, and contractors who desire to know the special rules of modern abattoir construction, but also municipal authorities, veterinary inspectors, health administrations and commissions, councils of hygiene, veterinary teachers—in a word, all those who are interested in perfect installation, examination, and administration in the abattoir. A historic sketch shows us how the modern abattoir is necessary for the defence of public health against the transmission of certain diseases common to men and animals, and against intoxications caused by the consumption of diseased meat. The discoveries of Pasteur and his school have, above all, given a manifest importance to the sanitary inspection of abattoirs. After a timely criticism of the French abattoir, the author passes foreign establishments in review. Afterwards he indicates the general conditions of construction of the modern abattoir, and makes a detailed study of the cost of construction and of the ways and means to be adopted to produce a complete abattoir. Nine typical plans of abattoirs in different important towns are reproduced in the text, and are applicable to the needs of these localities. The slaughter houses of the butcher, the pork butcher, and the horse slaughterer are described very minutely with all the appurtenances and utensils.

The tripe room is equally well discussed. The comprehensive chapter on the preserving room and the installation and equipment of the cooling

room gives a good idea of the necessity and economy of the system. The cattle, sheep, and pig pens, as well as annexes, the cattle market, and industrial annexes for dealing with skins, tallow and fat, are discussed in two chapters.

The last part of the work is devoted to the general administrative and sanitary services. The different taxes and tolls applicable are successively examined.

The technique of veterinary inspection is also explained without describing the lesions and alterations which justify seizure. Special works on veterinary science must be consulted on questions of pathology, parasitology and microbiology.

In this second edition the author has examined some new questions and modified certain others, notably :—

The account of the results obtained in recent years in the renovation of abattoirs; the question of regional and industrial abattoirs; the statistics of French abattoirs for the veterinary departments.

The average rates (noting area, price of construction, etc.) which the modern French abattoirs produce; the modernisation of old abattoirs; the cooling and freezing rooms (preparation of meat, arrangement, refrigeration, and working of freezing apparatus).

The biological purification of residuary fluids; the different taxes of abattoirs and their institution; the attributes of the supervisor; veterinary control, etc.; the regulations involving seizure, the legality of seizure; the processes of sterilisation and destruction of meat; model and typical regulations to be applied in the abattoir.

This book, patronised by the Academy of Medicine and by the National Society of Agriculture, constitutes, with its 279 plans or figures, a work which has the merit of uniting in a single volume all that ought to be known on the construction, installation, work and administraton of an abattoir, and of presenting all this information in a clear and methodical form. One sees in it the work of an enlightened practitioner who thinks and writes as a practical man.

GEORGES MAQUIGNY.
23 rue de la Tannerie, Abbeville, France.

NOTICES.

All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C. Telephone: 4646 Gerrard. Telegrams: "Baillière, Rand London."

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